



Australian Government
Australian Centre for
International Agricultural Research



*“Strengthening Institutional Capacity, Extension Services
and Rural Livelihoods in the Central Dry Zone and
Ayeyarwaddy Delta Region of Myanmar”*

(ASEM-2011-043)

Agricultural Extension History in Myanmar

Aye AyeKhaing

Research Document: 11-YAU-ASEM-2011-043

May, 2017



ACIAR

Research that works for developing
countries and Australia

aciar.gov.au

**Australian
Aid** 



Australian Government
Australian Centre for
International Agricultural Research



Australian Government
Australian Centre for
International Agricultural Research



Acknowledgement

Author is grateful to the Australian Government and ACIAR Project “Strengthening Institutional Capacity, Extension Services and Rural Livelihoods in the Central Dry Zone and Ayeyarwaddy Delta Region of Myanmar”(ASEM-2011-043) for financial assistance in preparing this review paper.

Organized by

Dr. Theingi Myint

Project Coordinator

Professor

Department of Agricultural Economics

Yezin Agricultural University

Email: theingi.myint@gmail.com



ACIAR

Research that works for developing
countries and Australia

aciar.gov.au



Australian Government
Australian Centre for
International Agricultural Research



Agricultural Extension History in Myanmar

Aye Aye Khaing

May, 2017



ACIAR

Research that works for developing
countries and Australia

aciar.gov.au

**Australian
Aid** 



Australian Government

Australian Centre for
International Agricultural Research



Abstract

Myanmar is an agricultural country and the agriculture sector is the backbone of its economy. Myanmar is blessed with favorable soils and water resources and has potential to increase agricultural sector if the systems are properly engaged. For the increased productivity in agriculture sector, Agricultural Extension Department took important role to a certain extent throughout the history since it was initiated till now. This report focuses on how the organization and system of Myanmar agricultural extension had changed or modified by time and their activities. Understanding the interventions and cause of changes will give the light for the planner or decision maker to tailor the need of farmers. For the increased productivity in agriculture sector, role of extension agents and specific experts in research and development activities and linkage between them is crucial. For the human development resources program, more training centers and universities are needed to be established. Setting up of priorities and implementing is essential for the better use of the limited budget and resources. Hand-in-hand cooperation and collaboration of government, private and Development partners ensure sustainable food production and assure market in regional and global.

Key words: agricultural extension, history, land utilization, irrigation, Myanmar



Contents

1. Introduction.....	3
2. History of the Agricultural Extension in Myanmar	3
3. Organization of Department of Agriculture (DOA).....	8
3.1. Vision of DOA	9
3.2. Vision of Agricultural Extension Division	11
4. Agricultural Extension Approaches and Rural Development Activities in Myanmar	12
4.1. Farmers’ Field School	14
4.2. Farmer Channel TV Program	14
4.3. Integrated Rural Development Programs	15
4.4. Myanmar Saemaul Undong Project	16
5. Constraints for Myanmar Agricultural Extension System.....	17
6. Human Resources Development.....	20
7. Conclusion	22
8. References.....	23

List of table

Table 1. Educational Level of Extension Staff	11
---	----

List of figure

Figure 1. Organization Chart of DOA (Source: DOA, 2016).....	10
--	----



1. Introduction

Myanmar is an agricultural country and the agriculture sector is the backbone of its economy contributing 22.5% of GDP, and employs 70% of the labour force (Suh, 2015). About 75% of the total population reside in rural areas and are principally employed in the agriculture, livestock and fishery sectors for their livelihood although commercial livestock activity is limited in Myanmar. The natural diversity of Myanmar provides favorable soils and water resources in a wide range of tropical, sub-tropical and temperate cropping options. Out of the total crop sown area of 11.87 million hectares, less than 20% of cultivated area is under irrigation (Suh, 2015). The rest of the land has to rely on the rain for crop production.

The Agricultural Census of 1992/93 estimated that there were 2.72 million agricultural land holdings, with an average farm size of 2.5 ha and an average household of 5.5 persons. The majority of holdings are small, 82% with less than 4 ha occupy 53% of cultivated lands, 54% with less than 2 ha occupy 21% of cultivated land.

Myanmar agriculture sector has been led by the Ministry of Agriculture, Livestock and Irrigation since the colonial days although the name of Ministry changes as different names. For the increased productivity in agriculture sector, Agricultural Extension Department took important role to a certain extent throughout the history since it was initiated till now.

This report focuses on how the organization and style of Myanmar agricultural extension system has been changed or modified by time. The report will give the insights of the causes which lead to changes in agriculture extension. Understanding the interventions and cause of changes will give the light for the planner or decision maker to tailor the need of farmers.

2. History of the Agricultural Extension in Myanmar

Myanmar economy has depended on agriculture since the time of Myanmar kings. Since ancient time, Myanmar kings attempted for the development of agriculture by constructing reservoirs, lakes and irrigation canals. Dams and reservoirs were built in Kyaukse region in the time of King Anawrahta (reigned AD 1044-1077), to enable the people to engage in agriculture on a regular basis (MAPT 2004, Stargardt 1968). In the time of Myanmar kings during Bagan Dynasty, the areas where irrigation was used for the agricultural purpose were Kyaukse, Shwebo, Mandalay, Yamethin, Meiktila and



Minbu Districts. Even the British government, which occupied Upper Myanmar in 1885, renovated and used the dams and reservoirs built by Myanmar kings (MAPT 2004).

In the ancient time, King assigned head of village tract depending on the cultivated area and population of the village. In establishing villages, the foremost objective of the King was not only to collect and fulfill easily the required number of soldiers for the King's army but also to provide enough food for the kingdom. It is also apparent that Myanmar kings had taken measures to ensure sufficient supply of rice since they were frequently engaged in wars. It may also be seen as an attempt to stockpile enough supply of rice in order to confront contemporary monarchs.

In the colonial regime, legal control and classification of land in Myanmar was initiated by the British in 1876 as part of their introduction of a revenue collection and taxation system. Cadastral surveys were commenced shortly afterwards, and all land was classified according to ownership and use (FAO-ASR, 2004). The cultivable area of Myanmar was still left much compared to population, and the people who cultivated new land were favored and allowed to own their field area what they did cultivation. Hence, total cultivated area in Myanmar was gradually increased. The Settlement and Land Records Department (SLRD) was established during this period (FAO-ASR, 2004).

Meanwhile, irrigated area was increased because of the construction of irrigation work in Min-bu and Shwe Bo Districts of central Myanmar. Similarly, embankments were constructed in the Ayeyarwaddy Division to protect from the intrusion of salty water. However, Myanmar needed labour and investments and hence, the British government also provided various immigration incentives to raise rice production. Examples are the exemption of newly cleared land from land tax for 12 yr and a program to encourage the people of Upper Burma to move to Lower Burma.

The improvement of inland water ways and railways transport facilitated the movement of people from Upper Burma to Lower Burma under reduced or free-fare arrangements with the Irrawaddy Flotilla Company and the Burmese Steam Navigation Company. A population census at the time showed that the number of persons in Lower Burma who had been born in Upper Burma was over 300,000, or 8.5% of the total population. In addition, there was an immigration scheme under which the government brought in about 8,500 Indians annually; and there were twice that number of unassisted Indian immigrants in



1870 (Cheng 1968). There was a regular and constant flow of Indian immigrants. Some Indian companies were allowed to work and invest inside the Myanmar. At that time, world trade developed as the construction of Suez Canal was finished and Myanmar had become a country which exported rice the most in the world.

The Department of Agriculture (DA), which was responsible for technology development and transfer, was established in 1880 as part of the SLRD (Khin Win, 1991). An independent DA was started in 1906, staffed with a few personnel. The staffing strength of the Department began to increase with the addition of a few graduates from the Agricultural Institute of Poona, India. At the same time, the staff was complemented by Diploma of Agriculture graduates from the newly established Agricultural Institute of Mandalay and field workers who came from the farm schools operated by the experimental stations.

Although the DA was not well organized so as the lack of manpower at township and village level, the DA organized farmers groups at village level to increase production and export of rice. In 1924, agricultural college and research institute was founded in Mandalay. It was reorganized as a constituent college of Yangon University 1938. To produce medium ranked technicians, agricultural training school was opened in Mahlaing Town. At that time, DA carried out collecting statistical data and agricultural extension works by dividing southern part and northern part of Myanmar. The officer of southern part was ThiriPyan Chi U TharMyat. In the later years of colonial period, Extension Service had strengthened as the rice cultivation expanded and production increase.

With independence in 1948, a series of Land Nationalization acts were passed which abolished all lease, rental or sharecropping arrangements and established size limits on agricultural holdings according to their classification, use and the size of the family in possession. A basic limit of 50 acres (21 ha) was decreed for paddy and sugarcane, with smaller holding for other land types. These limits remained largely untouched through the socialist period and no further significant changes were made in land laws until the establishment of the Central Committee for the Management of Cultivable Land, Fallow Land and Waste Land in 1991. This committee was able to authorize the operation and control of much larger holdings of land for specific purposes by State-owned enterprises, cooperatives and private enterprises (FAO-ASR, 2004).



In 1954, the government of Myanmar further strengthened the Research and Extension of the DA with the formation of extension service at village, township, divisional, state and national level. Policy, planning, training, monitoring and evaluation were formulated by the national, state and divisional level while the township and village level are implementing the extension programs and projects. At that time, some of the selected crops were paid attention such as rice, oil seed crops (sesame and groundnut) and pulses. The DA extension service was the sole extension service at that time.

In 1956, the agricultural and rural development corporation (ARDC) was formed to fulfill the need of crop diversification. The ARDC constituted commodity development with different crop wise projects which initiated the cultivation of new crops such as oil palm, rubber, apple, grapes, long staple cotton, jute, kenaf, sugarcane and medicinal and herbal plants. Emphasis on Research activities relating seeds were carried out and the seed division was set up at Gyokone, Insein Township. Moreover, the corporation was entrusted with livestock and poultry projects. After Revolutionary Council ruled in 1962, the government operated in the priority of the advantages for the poor resources farmers and conducted Duya and Kapaung farmers meeting operations. In 1964, a new land policy which expressed the rights to till the land by the grower was enacted. Thus, the land lord systems come to an end and all the land are state property.

In 1974, new civil administration (the Socialist Republic of the Union of Burma) was ushered and department of Agriculture (DA) and the agriculture and Rural Development (ARDC) were merged as the agricultural corporation. The newly established agricultural corporation (AC) continued to perform the extension service of both the former DA and ARDC. During that period, the government focused on agriculture and concurrently at that time, High Yielding Rice varieties were released by IRRI, Philippine. The extension system employed by the DA and ARDC were primarily the traditional tickle-down system. New crop varieties, improved farm practices and new life stock strains were initially evolved at the experimental farms of different regions; tested on farmers' fields as trial-cum-demonstration and ultimately transfer for the further expansion. The drawback in the system was its failure to cover outline researches and in particular, the border area burdened with the poor communication and access.



In 1978, Training and Visit extension method (T&V) was initiated and implemented with the aid of World Bank in terms of financial and technology. Rice production in Myanmar dramatically changed because of varieties, resource persons and T&V method. Based on T&V method and the politics was being socialist party, Selective Concentrated Strategy (SCS) method which involved public activity was implemented. Similarly, SCS method was also applied in other crops not only in rice. The SCS system has five components (government support and leadership, proven new technology, selectivity and concentration, community organization and demonstration and competition) and has achieved to a certain extent of success in Myanmar agriculture.

In 1985 the government indirectly taxed the farmers by procuring the agricultural products with low price letting them left only seeds and grain for their subsistence. In 1987-88, the country fell into crisis in finance as well as other factors. Before 1988, ARDC took role for procuring cotton and attaining irrigation water in rural areas of Myanmar and AC took the functions for procuring of rice and other crops and agricultural extension education. However these two departments were merged as AC in 1989.

In 1992, the AC was renamed as Myanmar Agriculture Service (MAS) continuing its former functions of research, extension and all-round agricultural development. Meanwhile, the Ministry of Agriculture and Forestry was split into two separate ministries as the Ministry of Agriculture and Irrigation (MOAI) and The Ministry of Forestry (now the Ministry of Natural Resources and Environmental Conservation). Ministry of Livestock and Fisheries had previously been separated in 1983 and merged again with MOAI as Ministry of Agriculture, Livestock and Irrigation (MOALI) in 2016.

In 1994, under the MOAI, new crop-wise organizations were formed sharing certain functions from MAS and all the organizations carried out the extension services of their respective crops. These organizations were Myanmar Cotton and Sericulture Enterprise (MCSE) for cotton and mulberry, Myanmar Sugarcane Enterprise (MSE) for sugarcane, Myanmar Jute Enterprise (MJE) for jute and kenaf, and Myanmar Perennial Crops Enterprise (MPCE) for rubber, oil palm, and other perennial crops.

Meanwhile, MAS kept on its role of the main institution for extension of many other crops grown in Myanmar including rice and the principal source of agricultural research and extension. In order to do the extension activities effectively, supporting divisions such as



Land Utilization Division, Seed, Plant Protection Division, and Procurement Division, were formed. Procurement Division took the functions of selling the required agricultural inputs for farmers and buying oil seed crops, pulses and the exported crops from the farmers and exported to foreign countries. Sometimes, this Division took the function of distribution of new released crop seeds.

Under the military government, new crops such as mulberry, Thitsaint (*Terminaliabelerica* (Roxb.)), macadamia, coffee, jatropha were cultivated extensively in projects. Although the crops were cultivated in large areas with great aims, the projects failed because of no research and no systematic planning and implementation. Cultivation of hybrid rice using three lines (Cytoplasmic Male Sterile) method was initiated in 1999-2000, and it was also unsuccessful. During 2003-2008 periods, the distribution of fertilizer inputs and diesel were controlled by the General Administration Department, not by the MAS. In 2006-2007, MCSE, MSE, MJE, MPCE were merged and reformed (the Perennial Crops Enterprise which was composed of cotton, sugarcane, jute and rubber crop wise sections were reformed) as Myanmar Industrial Crops Development Enterprise (MICDE). In 2012, MAS was renamed again as the Department of Agriculture (DOA) maintaining its main function for agricultural research and extension. During 2010-2015, the MOAI drive hybrid rice cultivation and it was successful to some extent. However, its expansion relies on China trading channel. In march of 2016, MICDE and DOA were merged and called collectively as DOA which are taking responsibility for all the crops, whereas the MOAI and the Ministry of Livestock and Fishery were merged as the Ministry of Agriculture, Livestock and Irrigation (MOALI). At the present time under the new government, the farmer has the right to choose crops without impairing the rice production for the nation.

3. Organization of Department of Agriculture (DOA)

The current MOALI comprises fifteen departments as of 2016. Among the constituent units of MOALI, DOA is the largest unit with a total staff of more than 14,000, and itself is presently comprised of fifteen divisions responsible for a variety of field operations, including extension, research, seed multiplication, plant protection and land use.

DOA is mainly responsible for providing extension services to the farmers and its vision is as follow:





3.1. Vision of DOA

For the self sufficiency of domestic consumption with an annual increasing population and export excess produce, DOA is taking part its main task force of transferring technologies to the farmers for getting better economic returns by increasing yield per area and improving crop quality in accordance with six key factors for the development of production of main crops such as rice, corn, groundnut, sesame, sunflower, mustard and niger, and pulses, chili, onion, garlic and potato as culinary crops.

Three main priorities undertaken by DOA are 1. Seed Production, 2. Training & Education, and 3. Research and Development.

There were eight different Divisions under DOA till March 2016: Technology Transferring Divisions (Agricultural Extension Division, Seed Division, Land Use Division, Plant Protection Division, Horticulture and Bio-technology Division) and Supportive Divisions (Planning Division, Administration Division, Account Division). However, there are 15 divisions under DOA after merging DOA and MICDE (see in figure 1).



Organization Chart of Department of Agriculture

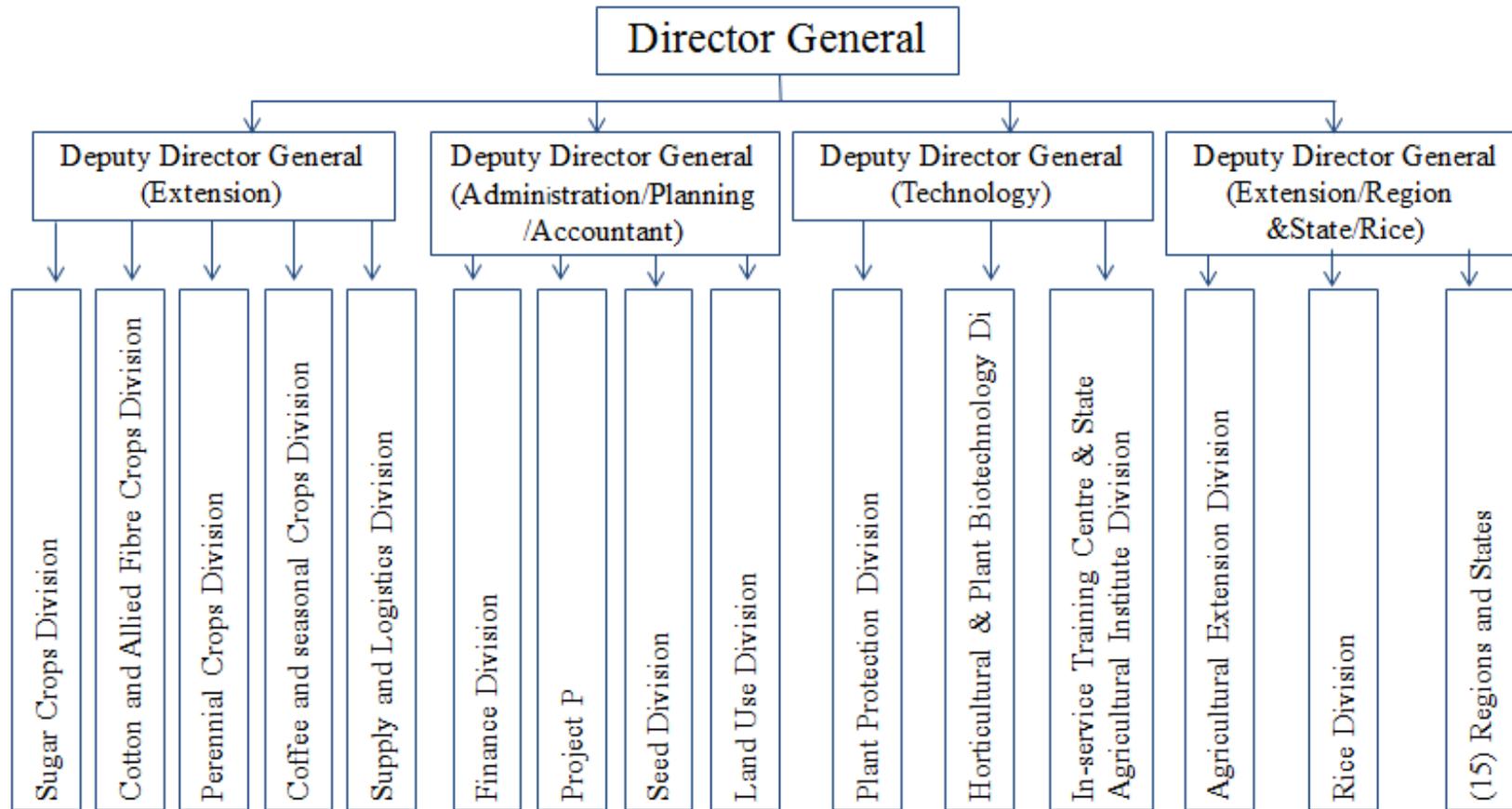


Figure 1. Organization Chart of DOA (Source: DOA, 2016)



ACIAR
Research that works for developing
countries and Australia
aciarc.gov.au





Among the fifteen Divisions of DOA, the Agricultural Extension Division (AED) (9414 staff in AED of which 14774 staff in DOA) is the largest one with a total of 9414 staffs, of which 7516 are agricultural technicians including 6 PhD holders, 52 M.Sc. holders and 1680 B.Ag holders (Table 1) as of 31st March, 2016 (AED, 2016). Its major function is transferring appropriate agricultural technologies to different resource status of farmers. And it also organizes and motivates farmers to adopt proven technologies for better livelihood in rural farming community and increased national agricultural production.

Table 1. Educational Level of Extension Staff

Organization	Ph.D	M.Sc	B.Ag	Dip Agri	Other	Total
DOA Total Staff	53	188	2653	4164	7716	14774
Extension Staff	5	41	1576	4059	1835	7516

(Source: AED 2016)

3.2. Vision of Agricultural Extension Division

1. Making the increase of yield by using of the good agricultural practices for rice farmers
2. Production and distribution of good quality seeds of crops in government fields and farms
3. Increasingly growing of hybrid rice and high quality varieties
4. Extensively cultivating the cereal crops, oil seed crops, pulses and culinary crops to obtain food security for consumers
5. Educating and doing demonstration and experiments to follow up the activities of agricultural techniques and cropping patterns which are adaptable to different geographical condition
6. Carrying out to extend new varieties of crops
7. Training for the improvement of technical efficiency of agricultural staff (MOAI, 2014)

The AED has been undertaking the following extension activities (Cho, 2013):

- Training and capacity building of extension agents;
- Training of farmers in transfer of technology through Farmers Field Schools (FFS); Farmers to farmers discussion, training and education;
- Farmer-based participatory demonstration trials and field visits by local authorities and extension agents;
- Delivery of educational materials, pamphlets, newsletters and books on new crops;



- Education of farmers on the utilization of quality seed, drum seeder, combine harvester, dryers, etc.
- Explanation of post-production losses in rice production to the farmers;
- Cooperation among government, non-government and other relevant institutions for the dissemination of advanced technology at village level.

The Director of the Agricultural Extension Divisions, in carrying out these duties, is assisted by:-

- (a) State or Divisional Managers at the State and Divisional level;
- (b) District Managers at the district level;
- (c) Township Managers at the township level;
- (d) Village Tract and Village Managers at the village level.

A Village Extension worker has to take charge of a few village tracts or village with 3,000 to 6,000 acres of crop land depending upon the locality and state of communication, while a Village Tract level agent supervises the work of 10 Village extension agents who are in direct contact with farmers.

4. Agricultural Extension Approaches and Rural Development Activities in Myanmar

The extension activities of agriculture sector were mainly carried out by the agricultural extension Division (AED) of Department of Agriculture (DOA). Agriculture extension commenced with the establishment of Department of Agriculture (DA) in 1906. The activities in these days were demonstrations, distribution of pamphlets, and discussions to disseminate the improved technology. Moreover, distribution of quality seeds, fertilizers, agrochemicals, and improved implements were made by DA.

The Training and Visit (T&V) approach was introduced by the aid of World Bank and implemented as a pilot project in four townships of the Ayeyarwaddy Division and three townships of the Yangon Division in 1974 (Tin Hlaing and Tin Maung, 2004). This project was named as Lower Burma Paddy Land Development Phase I. the Development Phase II was carried out till 1983 (Maung Mar, 2004). In T&V system: 1. selection of one contact farmer for 10-15 farmers group. 2. Regular meeting with these contact farmers 3. Training the village level extension workers by the subject matter specialists with two weeks interval 4.Regular weekly visit of village level extension workers to contact farmers, and visit of



subject matter specialist fortnightly for countercheck and evaluation 5. Evaluation of project were included.

During the project period, the staffs were provided with transport facilities like vehicles, housing, funds, and extension materials and equipments. The project emphasized on rice (Maung Mar, 2004). The T&V system was felt as a bit slow in technology transfer although scientific and satisfactory. At that time, T&V system tended to remain the incompatible to the political favor of the period since the Burma Socialist Programme Party and its affiliated institutions favor the approach of mass participation in agricultural production. Under such circumstance, T&V system was not extended to other regions and terminated at the completion of World Bank Project.

The Special High Yielding (SHY) programme for rice, implemented by AED, was based on proven technology, government support, and mass participation of farmers. The programme encouraged farmers to compete among themselves and reach high rice productivity, which further encouraged application of high levels of fertilizers and inputs. The training and visit (T&V) extension approach emphasises regular meetings between extension agents, subject matter specialists and farmers. AED has developed the Special Crop Production Zone extension programme for rice and other crops, combining principles of the T&V and SHY. It is designed for regions of favourable agro-ecological conditions and uses high yielding varieties, high levels of fertilizers and certified seed (FAO-ASR, 2004).

In 1977, the whole township special high yielding production system was initiated in Phalon Village, TaikKyit Township (Tin Hlaing and Tin Maung, 2004). It was selected as a pilot site for the demonstration-cum-trial of a package of improved rice production technology which included the training of agricultural extension workers and farmers and their active participation in all cultural operations of rice production, as well.

The special high yielding extension strategies for rice was effective and successful. It was extended to the most ecological favorable township in subsequent years. Most farmers accepted HYVs that came from IRRI as well as these released from local research station. The cultivations in combination with correct cultural practices and high inputs lifted Myanmar from its stagnant rice production. The use of HYV increased dramatically up to 50% of rice growing area in 1987 (Tin Hlaing and Tin Maung, 2004).

The program was a successful story and the number of whole township rice



production program was increased within 5 years. The average yield of rice in this program increased from 1.7 t/ ha to 3.5 t/ ha (Tin Hlaing and Tin Maung, 2004). Later on, commencing of 1979-80, this kind of whole township crop production program was practiced for wheat, maize, sorghum, groundnut, sesame, sunflower, cotton, chickpea, green gram, black gram, sugarcane, jute and potato. However, these whole township crop production programs were terminated in 1988 with the political changes.

More participatory extension approaches have been attempted by AED. These are based on the selection of pilot areas and farmers' groups, where extension agents and farmers design crop development plans based on perceived constraints. Crop plans are packages of technologies demonstrated to farmers in study plots. Meetings, training and field days are conducted in the demonstration sites (FAO-ASR, 2004). Participatory extension approaches are still being implemented in cooperation with JICA and ACIAR. The Farmer Field School is another recent participatory extension approach introduced by the Plant Protection Division. It is based on non-formal adult education methods that focus more on discussion and experimentation rather than traditional training (FAO-ASR, 2004).

4.1. Farmers' Field School

The new extension system of Farmers' Field School model (FFS) was formulated and used in China, Philippines, Thailand, and Vietnam. The Extension Division of MAS has the plan to use FFS widely. It intends to increase the Productivity, Profitability, and Sustainability. It uses non-formal adult education methods like discussions, meetings, field days, experimental demonstrations, and exhibitions, etc. FFS was first introduced under a project named Farmer Field School for sustainable agricultural development in Myanmar as the first project phase (2001 to 2003) and as second phase in 2004 to 2006 (Ja and Kabir, 2007).

4.2. Farmer Channel TV Program

Use of mass media is an efficient and effective way for quick dissemination of information in time. Broadcasting the information through TV or radio is very supportive for the farmers. Among the mass media, TV program is the most attractive and effective way as it provides audio and visual. The MOALI has been producing the TV program for the farmers in cooperation with MRTV. Farmers Channel is a MRTV's specialty television channel aimed at informing and educating farmers in Myanmar. This channel was started on 10th September, 2013.



4.3. Integrated Rural Development Programs

A. Rural Infrastructure Development Policy

1. To support sustainable development of rural roads and bridges, including roads for transporting farm produces aiming to uplift the socio-economics life of rural dwellers
2. To support the provision of rural lighting initiatives in areas outside of national electrical grids, aiming to uplift the living standard and livelihoods of rural dwellers
3. To support basic social infrastructures development through public-centered approach

B. Rural Infrastructure Development Strategic Thrust

4. By 2030, all villages can access to at least one main road worthy of travelling in all seasons, and a strategic plan for the development of rural transport roads and bridges will be formulated and implemented.
5. Rural lighting programme will be implemented in areas outside of the electrical grid, in accordance with national electrical programme.
 1. Rural lighting programme will be implemented in collaboration with private sector.
 2. The necessary rules and regulations for the development and implementation of Mini Grid will be formulated and enacted.
 3. Rural housings and latrines will be built for villagers who are under emergency condition and are affected by natural disaster and lost their houses.
 4. To support basic social infrastructures development programme through public-centered approach

Integrated Rural Development Programs are being implemented in Myanmar. Since 2014, SaemaulUndong movement (SMU) meaning new village activity has been implemented with the help and cooperation of Korea International Cooperation Agency (KOICA) in 100 villages across the country. This activity is very successful in Korea since 1970s. The project is long term project and will be assessed on the development of the village in terms of infrastructure and incomes.



4.4. Myanmar SaemaulUndong Project

To know more about SaemaulUndong (SMU), the history of SaemaulUndong and SMU activities in Korea is referred here from the report of Asia Development Bank (ADB, 2012). SaemaulUndong (SU as abbreviated by Korea), the New Village Movement, was a community-driven development (CDD) program pursued during the 1970s in the Republic of Korea. Ultimately, this was the key program in the country's long-term economic development initiative implemented during the latter half of the 20th century. The major aim of the SU movement was to overcome what at the time appeared to be endemic rural poverty in the Republic of Korea. Ultimately, this CDD initiative produced both tangible and intangible benefits that made long-term growth in both per capita income and well-being possible for the people. One of the most important benefits the initiative produced was a sweeping change in the mind set of the people from chronic defeatism to one of "can-do" enthusiasm that drove rapid overall development within the society. Without this change in mind set, the SU movement's long-term impact on individual and community well-being would not have been possible.

Ultimately, the change in mind set referred to above made possible the tangible outcomes of the SU movement that in turn improved individual and community well-being. These outcomes may be summarized as follows: (i) poverty reduction through rapid increases in household income; (ii) access to modern infrastructure and services delivered in the form of mechanized farming, electrification, improvement of residential housing, and health services, the latter including farming-season day-care nurseries; (iii) community empowerment through amassing of social capital and concomitant growth in civil society; (iv) community revitalization through younger leadership and promulgation of status-free village social life; and (v) elevation of the role of women through increased female social participation and advancement of women in the role of household management (C.Y. Kim 2011, Ha 2010, Reed 2010, You 1980). Lessons learned from the SU movement that may to some degree be successfully replicated elsewhere given appropriate adaptation (ADB, 2012).

Myanmar SaemaulUndong project is implementing from 2014 to 2019 for five years with the support of 22 million USD from KOICA. Among over 64000 total villages in Myanmar, 100 pilot villages were selected as project areas from 9 regions and states. Project



Steering Committee was organized with 13 Director Generals from respective departments including DOA, chief representatives from KOICA and SMU project manager whereas Department of Agriculture under Ministry of Agriculture, Livestock and Irrigation is focal department.

Major project components are training and education for village leaders and government staffs, supporting 20000 USD for each village for implementation of village development plans with three sub project activities, namely, capacity building, improvement of living environment and income generation. Myanmar SaemaulUndong Academy (MSMUA) was currently under construction in Yezin and plan to train more village leaders and government staffs. The unique characteristics of SMU project is preparing the village development plan by themselves and implementing the activities with self help, self reliance and cooperative mindset. Incentive system for 100 villages also motivates the villagers' active participation. After proofing the success of the 100 pilot villages, the government has a plan to extend more villages in Myanmar.

5. Constraints for Myanmar Agricultural Extension System

Farmers and their problems/constraints are seldom considered in the planning process of research/extension work. Most research activities are planned in a centralized manner by the various research institutions and mechanically implemented by field staff. Since the planning process of research programmes rarely consider production constraints, farmers' needs and extension views and conditions, the technologies generated are often not adapted and/or not of interest to the majority of end users, rendering some research programmes expensive and irrelevant (FAO-ASR, 2004).

Overall numbers of research and extension staff may seem adequate, but most institutions have few skilled experts. That research staff that have advanced degrees are, for the most part, assigned to managerial posts and do not implement research projects. Extension services of AED, departments and Enterprises have a very large number of staff assigned to all hierarchical levels and stationed in all geographical units throughout the country. But, the technical skills and academic qualification of this large work force is outdated and very limited (FAO-ASR, 2004). Till now, the graduated extension staff is only 22% of total staff of AED (Table 1).



Research programmes are, for the most part, commodity based and production oriented. Most projects are “stand alone” in the sense that they do not form building blocks of a programme targeted to reach a well-defined objective. Projects normally do not take into account farmers’ needs and constraints, production cost, profitability, marketing, and insertion of the researched technology into the prevailing cropping system. Similar activities are repeated year after year without a clear objective. In part, this occurs because projects and programmes are usually centrally planned at headquarters for implementation on research farms. Those who plan do not have the in-depth experience and knowledge of the local agro-ecological and socio-economic conditions, and those who implement in many instances do not understand the technical design of the projects. In addition, priorities are usually set at headquarters without effective involvement of research field staff, extension agents, and farmers (FAO-ASR, 2004).

A farmer-centered, service oriented extension system provides the conduit through which common farmer problems get identified and flagged for the attention of researchers so they can help farmers to solve practical problems that limit farm productivity. Nonetheless, links between extension and research remain generally weak in Myanmar. “Of particular concern is the absence of operational interaction between staff of the Central Agricultural Research Institute (CARI’s, now called as Department of Agricultural Research, DAR) outlying research farms and staff of the extension services.” (FAO, 2005). Most institutions lack systematic mechanisms for efficient dissemination and exchange of scientific information between research, extension, and farmers. Extension agents rarely come to the research stations and researchers do not routinely visit extension offices or demonstration sites. Effective interaction between the two institutions occurs only occasionally on an individual project basis (FAO-ASR, 2004).

Generally extension agents have to travel and work within their jurisdiction. The main problems of the extension agents were poor transport and lack of incentives for their performance (NyiNyi, 2004). There is a need to provide an appropriate transport facility for the efficient mobility such as motorcycles and bicycles. Extension agents made very rare contact with resource institutions for their improvement of technical-know-how. Universities and research institutions also require some information from extension service to navigate their orientation. So, there may need to establish proper channel for linkage between



extension service, research institution and universities.

The extension service has a large workforce, many of which has in-depth practical field experience, and is committed to their work. But, the technical skills and academic qualification of this workforce is limited and outdated. The development of an effective, motivated and professional extension workforce is, perhaps, the most important investment to be made in the extension system in Myanmar. This would require a comprehensive review of existing human resources and experts skills available. Human resources for extension should be dimensioned in the light of the various extension programmes, projects, objectives, and priorities. Training providers would be selected on the basis of their capability to deliver the required output. Training abroad should be considered in special cases. Major attention would be placed on participatory approaches that take into consideration poverty issues, environmental protection, social and financial benefits, and markets among others (FAO-ASR, 2004).

To overcome the constraints in Agricultural extension system or improve Myanmar extension system, KhinOo and Cho ChoMyint (2007) proposed two ways of implementing the extension strategies of (1) decentralization and (2) empowerment and participatory approaches. The extension system must decentralize its planning approach in order to give local managers (state/division, district, township, and village tract) responsibilities and resources to plan and implement extension programmes relevant to their specific agro-ecological and socio-economic conditions. Success in disseminating improved technologies by extension organizations require functional linkages with stakeholders including farmers, research institutions, training centers, and the private sector. Decentralization of extension planning and upgrade of skills of extension staff would facilitate the establishment of effective linkage mechanisms (FAO-ASR, 2004).

To resolve these constraints, it will require considerable investment in both financial and institutional terms, as they will require not only an improvement in the capacity of research and extension personnel to undertake effective programmes, but will also demand an extensive restructuring of the way in which research needs are identified and prioritised, conducted and disseminated. It will also require considerable improvements in linkages between different research bodies and between researchers and extension services and their staff (FAO-ASR, 2004).



In establishing any new form of extension system, Tin Hlaing and Tin Maung (2004) also suggested that the factors of government policies, linkage between research and extension, human resources development, adequacy of inputs, agricultural credits, mobility of extension agents, and Yezin Agricultural University, merit due attention and accord in order to ensure that any new approach be effective and successful.

6. Human Resources Development

Graduate and post graduate Agricultural Education is offered by Yezin Agriculture University, with diplomas in Agriculture offered by the 14 State Agriculture Institutes (SAIs). Pre and post service training is also offered by Central Agriculture Research and Training Centre (CARTC). Training activities are not planned by the Centre, but by the major clients (DOA and AED). All these institutions come under the MOALI.

The YAU has strategic importance in preparing skilled scientists for strengthening the research and extension systems and a level capable of producing high quality graduates for research and extension. As FAO-ASR (2004) stated that human resource development can be regarded as a truly sectoral issue. Financial constraints and the relative isolation of Myanmar during a period of about two decades have significantly reduced the number of sector professionals who have the opportunity to benefit from international training.

Similarly, they expected Yezin Agricultural University (YAU) will suffer a shortage of human resources in possession of Ph.D.s and other specialised training and this problem will become critical within one decade. This is because of the old professors' retirement and new generation gap. This problem really came to YAU during these years although new blood teaching staffs have been appointed in YAU. As an agricultural country, it needs more and more graduates with agricultural science and YAU is producing about 400 graduates per year (twice of that per year in last two decades).

However, the staff number of the Departments in YAU is the same as before. This may result inefficient teaching and planning capability of YAU. Therefore, student-teacher-course equilibrium system and upgrading the quality of new appointed teaching staffs are needed to promote the capabilities of YAU. At present, YAU is planning and trying to establish the Department of Agricultural Extension Education in near future to reinforce the Myanmar Agriculture Sector with well trained extension staffs.

The ratio of extension agent to farmer ratio could vary from country to country. It has been estimated that extension personnel employed in the Asia-Pacific Region, during 1990's,



was made up with about 80% as field staff, 7% as administrators and 13% as subject matter specialists. The ratio of extension agent to farmer, during the said period, ranged from 1 to about 350 in the Philippines and to more than 1000 in Thailand. In Myanmar, a village extension manager currently has to supervise crop lands varying fund 3000-6000 acres (500-1000 farmers), while a village tract manager has to oversee the work of 10 village extension managers. The ratio of extension agent to farmer remains important, since case studies have indicated that in actual practice an extension agent can cover only about 500 farmers a year.

Again, the quality or educational qualification of extension personnel also influences the effectiveness of existing systems. Agricultural Extension staff- Village Extension managers (VEMs) and a well as Subject matter Specialists (SMSs) constitute the vanguard of any extension system and their qualities are main determinants in the success or failure of the transfer of technology. And in these aspects their qualifications and know-how need to be constantly upgraded.

The Central Agricultural Research and Training Centre was established with the financial assistance of Japanese International Cooperation Agency in 1984. The main objective of the CARTC is to upgrade the technical knowledge and the efficiency of the extension agents through local training on modern agriculture technologies. In addition, the CARTC organizes workshops and seminars to exchange the knowledge and experiences of the extension agents from respective regions throughout the country. The CARTC has a training section responsible for carrying out of training and improvement of teaching materials, a field section for control and operation of the demonstration farm, a publication section for the compilation and printing of training materials and an audio-visual section for the operation and maintenance of training aids.

The CARTC provides pre-service training, in-service training, on-the-Job training and various kinds of technical training for the staff of the MOAI (Cho, 2003). However, most of the in-service training was oriented towards field crop production. There was little training on extension education (NyiNyi, 2004).



7. Conclusion

Linkage between research and extension is crucial and should be strengthened by working together in some activities such as on-farm research and farmer field school. Capacity of agricultural extension agents need to be productivity in agriculture sector, role of extension agents and specific experts in research and development activities equipped with the better provision of advanced agricultural methods, market information to farmers for the production of quality and value-added products, which compels expansion and upgrade of present agricultural vocational and academic institutions. For the human development resources program, there are only one agricultural university and only one nation-wide training centre for pre-service and post-service training. Therefore, more agricultural universities and more regionalized training centers such as the delta, hilly regions and central dry zone should be established. Presently, CARTC should be upgraded due to the link of revised curricula in YAU especially for extension education and agricultural economics. The FFSs should be practiced to equip the farmers with problem solving abilities. Farmer to farmer knowledge sharing should be practiced for the high level of technology adoption. A mobile-based information/advisory system (Call centre) could give the advantage of being relatively low-cost at a high-outreach capacity. Such a call centre for agriculture should be urgently established. Setting up of priorities and implementing is essential for the better use of the limited budget and financial resources and setting up a clear and consistent regulatory framework for the private sector is also required. Hand-in-hand cooperation and collaboration of government, private and Development partners ensure sustainable food production and assure market in global and regional.



8. References

- ADB (Asian Development Bank), 2012. The SaemaulUndong Movement in the Republic of Korea- Sharing Knowledge on Community-Driven Development, Asian Development Bank, 6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines. pg 64
- AED (Agricultural Extension Division), 2016. Annual report 2015-2016 (in Myanmar Language), Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation. pg 194
- Cheng, S. H., 1968. The rice industry of Burma, University of Malaya Press, Kuala Lumpur. 1852-1940.
- Cho, K. M., 2003. Challenges and Policy Options for Sustainable Rural Development – Future Development of a Participatory Extension Approach in Myanmar. Justus-Liebig-University Giessen, Institute of Rural Sociology and Extension, Senckenbergstr.3, 35390 Giessen, Germany
- Cho, K. M., 2013. Current Situation and Future Opportunities in Agricultural Education, Research and Extension in Myanmar Background Paper No.5 (MDRI-CESD) pg 38
- FAO (Food and Agriculture Organization), 2005. Myanmar Agricultural Sector Review and Investment Strategy. New York: UNDP.
- FAO-ASR, 2004. Myanmar Agricultural Sector Review Investment Strategy. Volume 1 – Sector Review. pg 176
- Ha, J. H., 2010. Saemaul movement as a development model. An academic paper presented at a seminar organized by National Council of SaemaulUndong Movement in the Republic of Korea.
- Ja, D. rin N. and Kabir, H., 2007, Farmer field school for sustainable agricultural development in Myanmar. In the Proceedings of the National Symposium on Farmer-Led Agricultural Extension Approaches in Myanmar 29-30 May, 2007, Yangon, Myanmar. pg 83-93
- KhinOo and Cho ChoMyint, 2007. Overview of Current Agricultural Extension in Myanmar: Proposal for its Improvement. In the Proceedings of the National Symposium on Farmer-Led Agricultural Extension Approaches in Myanmar 29-30 May, 2007, Yangon, Myanmar. pg 127-132
- Khin Win, 1991. A Century of Rice Improvement in Burma IRRI, Manila, Philippines. pg 174
- Kim, Chung-Yum, 2011. From Despair To Hope: Economic Policymaking in Korea 1945–



1979. Seoul: Korea Development Institute.
- MAPT, 2004. History of rice marketing in Myanmar, Myanmar Agricultural Produce Trading, the Ministry of Commerce. pg 273
- Maung Mar, 2004. The Agricultural Research, development, and extension system in Myanmar. Myanmar Academy of agricultural, Forestry, Livestock and Fishery Sciences. Ministry of Agriculture and Irrigation, Yangon, pg 73-191
- MOAI (Ministry of Agriculture, Livestock and Irrigation), 2016. Second Short Term Five Year Agriculture Policies and Strategic Thrusts
- MOAI, 2014. Activities of the Department of Agriculture. pg 85
- NyiNyi, 2004, general role and technical proficiency of agricultural extension agents under human resources development (HRD) in Myanmar, MSc Thesis, Yezin Agricultural University, Myanmar
- Reed, E. P., 2010. "Is SaemaulUndong a Model for Developing Countries Today?" In SaemaulUndong: Chinan 40 nyonapro 40 nyon [Review of the 40-year history and future perspective of SaemaulUndong in the 21st century]. Academic paper in Republic of Korea language presented at the International Symposium in Commemoration of the 40th Anniversary of SU Movement. Seoul
- Stargardt, J., 1968. Government and irrigation in Burma: A comparative survey. Asian Studies: Journal of Critical Perspectives on Asia, 6 (3) pg 358-371
- Suh, C. Y., 2015. Agricultural situation, challenges and agricultural policy of Myanmar, Training material for Myanmar SaemaulUndong project. pg 28
- Tin Hlaing and Tin Maung, 2004, Agricultural Research, Extension, and Rural Development in Myanmar, Myanmar Academy of agricultural, Forestry, Livestock and Fishery Sciences
- Tin Hlaing, Tin Maung, Maung Mar and Paramod, K. A. 2004, Agricultural Research, Extension, and Rural Development in Myanmar. Myanmar Academy of agricultural, Forestry, Livestock and Fishery Sciences. Ministry of Agriculture and Irrigation, Yangon
- You, T. Y., 2000. The problems and the solutions on rural SaemaulUndong for the 2000s Korean rural society. Presented at 1980 International Symposium of SaemaulUndong Movement at Konkuk University



Photos are books which have been published by YAU_ACIAR_ Strengthening Institutional Capacity, Extension Services and Rural Livelihoods in the Central Dry Zone and Ayeyarwaddy Delta Region of Myanmar (ASEM-2011-043)

Arranged by Dr. TheingiMyint, Coordinator, Professor of Agricultural Economics, Yezin Agricultural University